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ABSTRACT

The way that remediation affects the costs and the academic quality of higher education is discussed, and approaches to dealing with these problems are addressed. Recent increases in the number of underprepared students entering college have resulted in a greater need for remedial education to prepare them for college-level work. In addition to the financial burden resulting from remedial programs, academic quality may be lowered because of lowering the exit standards of a college and the value of the degree. Approaches to improve the situation may include raising admission requirements, tightening academic standards, and monitoring of remedial programs at open-door institutions. Successful remedial programs seem to use specially trained faculty who have chosen their assignment and are trained in counseling. The use of computer-managed and computer-assisted instruction in remedial programs is likely to increase in the future, and this technology has the potential to increase learning and reduce the cost of remediation. Although Florida, Kentucky, Mississippi, Georgia, and Virginia now allocate considerable resources to remedial programs, they plan to phase out funding for remedial programs to all but open-door institutions. (SW)

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REMEDIAL EDUCATION IN COLLEGE:

THE PROBLEM OF UNDERPREPARED STUDENTS

ISSUES IN HIGHER EDUCATION

Southern Regional Education Board

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Remedial Education in College: The Problem of Underprepared Students

Many high school graduates enter college without adequate academic preparation. "Underprepared" students are not ready to do college-level work -- they lack the academic skills, knowledge, and ability of most students in the college or curriculum in which they are enrolled. Remedial education is intended to help underprepared students overcome academic weaknesses so they can progress through a college-level educational program to graduation. As the number of underprepared college students has increased in recent years, two major concerns have emerged: the *rising cost* of remediation, and perceptions of *declining academic quality*. This report focuses on how remediation affects the costs and the academic quality of higher education and describes some pertinent directions for dealing with these problems.

The Current Situation

Among the factors which have contributed to the problem of underprepared students, the most important may have been the movement of the 1960s to provide greater access to the colleges and universities of the nation. The number of community colleges almost doubled — one consequence of this shift in educational philosophy. At the same time, the nation's high schools had the largest number of students ever. In the prevailing "permissive" climate, high schools lowered standards, reduced requirements, and permitted "social promotion." The outcome was that many high school graduates were not prepared for college work.

In the late 1960s and early 1970s, colleges generally had more applicants than they could handle, and admissions officers could exercise some degree of selectivity. But in the later 1970s, the World War II "baby boom" generation had completed college and there were fewer 18 to 24 year-olds to enroll. To maintain enrollments and revenues which, to a large degree, are based on "headcount," colleges began to admit higher proportions of applicants.

The Board of Regents in Louisiana has found that about 40 percent of the state's college-bound high school graduates are not fully prepared for college-level work. The Board estimates that, with remedial work, approximately 65 percent of these underprepared students can increase their academic skills to the level required for success in college-level work.

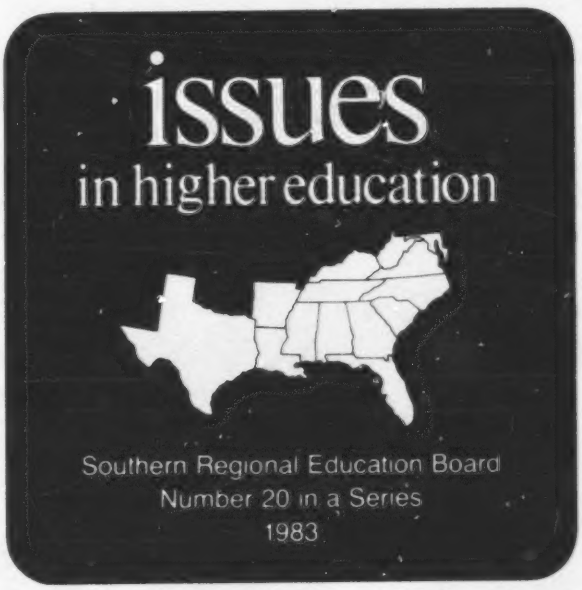
In Mississippi, the Board of Trustees of State Institutions of Higher Learning has found that about one-third of the freshmen enrolled in Mississippi's eight public universities take remedial courses.

A 1981 survey conducted by *The Chronicle of Higher Education* found that the number of remedial courses offered in colleges increased 22 percent from the fall of 1979 to the fall of 1980. The total number of courses offered grew only 15 percent during the same period.

A national survey of universities and four-year colleges by the Conference Board of Mathematical Sciences found that enrollment in remedial mathematics increased 40 percent from 1970 to 1975, and 72 percent from 1975 to 1980. In the 1970-75 period, there was no enrollment increase in other mathematics courses, and in the latter period, the increase was only 16 percent.

The problem of underprepared students and remedial education has attracted the attention of public officials. The governor of Virginia has encouraged the state's public colleges to raise admissions requirements so that the elementary and secondary schools, rather than the colleges, will gradually assume responsibility for the problem. Virginia's colleges spent an estimated $13 million on remedial education in 1980-81. In 1982, the governor of Georgia endorsed a report recommending that the state's public senior colleges tighten admissions standards and phase out remedial programs. In Georgia's public colleges, 34 percent of the first-year students take some remedial work. The Governor's Commission on Secondary Schools for the State of Florida has recommended that state colleges and universities should be prohibited from teaching remedial courses after 1985. Instead, such courses should be offered in high schools in the summer and in adult education programs.

In its recommendations for improving quality in education, the Southern Regional Education Board's Task Force on Higher Education and the Schools suggests that each state



appoint a joint committee from the state boards of education and of higher education to examine the most effective settings and models to serve the needs of underprepared high school graduates.

The proliferation of remedial programs in colleges has triggered some heated debates. Opponents assert that institutions of higher education should not be duplicating the work of the secondary schools — students should not be admitted into college if they cannot do college work. On the other side of the argument are those who insist that everyone in a democracy should have an equal opportunity to benefit from higher education — the students should not be faulted if the secondary schools have not done an adequate job.

Admitting large numbers of underprepared students presents major problems for many colleges. Adjustment of instructional capacity may mean hiring new instructors and developing new curricula. Such adjustments must be made at the same time that the financial resources of colleges are shrinking. But even colleges that allocate considerable financial resources for remediation may have ineffective remedial programs. Remediation is an uncertain undertaking in any educational setting. Skeptics contend that most remedial programs merely keep underprepared students in college — without contributing to the students' academic progress or career development.

The Cost of Remediation

When underprepared college students take remedial courses that are at the high school level, funds are being spent for education which students should already have received. Few states can afford to waste resources by duplicating educational expenditures, especially under current economic conditions.

One aspect of cost for remedial programs is hidden in student grant programs. When access to college is extended to underprepared students and these students pay for college with government grants, funds intended for education are actually diverted from education and research programs to support for subsistence. This is one example of the difficulty in measuring the real cost of remedial education.

Several states are now collecting cost information on remediation at the college level. California recently completed a study of its public colleges and universities which indicates that expenditures for remediation increased 42 percent in the two-year period from 1978-79 to 1980-81 (see Table 1). At campuses in the California State University System, expenditures rose 97 percent. Of the $80 million the public institutions spent for remediation in 1980-81, 92 percent came from state funds. Very little cost data for other states are available, but indicators suggest similar increases in most state systems of higher education.

Lousiana's Board of Regents for Higher Education estimates that the state's colleges and universities will spend $13 million on remedial education in 1982-83 — more than double the $6.2 million spent in 1979-80.

Sources of funds for remediation generally include federal, state, and institutional funding, student fees, and grants. With the cuts in federal funds for higher education, an increasing burden for funding remediation will fall upon state governments and student fees.

Academic Quality and Remediation

Many high schools and colleges have been criticized in recent years for lowering their standards of academic quality — and evidence to support these claims often appears valid. Widespread support for restoring standards of excellence and maintaining academic quality is stimulating educators to implement policies and practices to ensure that students meet achievement and performance criteria before graduating. John Gardner, former president of the Carnegie Foundation for the Advancement of Teaching, said it well two decades ago:

> Standards are contagious. They spread throughout an organization, a group, or a society. If an organization or group cherishes high standards, the behavior of individuals who enter it is inevitably influenced. Similarly, if slovenliness infects a society, it is not easy for any member of that society to remain uninfluenced in his own behavior.

In the late 1960s and early 1970s, grade inflation, fewer required courses, and award of degree credit for remedial courses all contributed to an erosion of academic quality in higher education. The degree credit issue is still controversial and bears further examination because some educators insist that students should be rewarded with degree credit for remedial work. These educators argue that degree credit is the primary incentive for underprepared students to take remedial courses, and is appropriate compensation for students who complete remedial work.

When degree credit is given for remedial courses, students necessarily take fewer college-level courses; consequently, they achieve less and are not as well prepared to enter the working world or to pursue further education. The degree-credit-for-remediation advocates in effect assume that a degree should be obtained within a fixed period of time, which contradicts a fundamental principle of learning — that the time required to learn something varies from individual to individual. Slow learners naturally take longer than fast learners to progress through a given curriculum. Degree credit for remediation, furthermore, perpetuates the public school legacy of "social promotion."

When the exit standards of a college are lowered, the value of the degree awarded, and to some extent of all college

Table 1

Remediation Expenditures in California's Public Colleges and Universities

System	Expenditures (millions) 1978-79	1980-81	Percent Change
University of California	$ 4.7	$ 6.8	40%
California State University	4.7	9.3	97
California Community Colleges	48.6	66.3	37
Total	$58.0	$82.2	42%

Source: California Postsecondary Education Commission, "Promises to Keep: Remedial Education in California's Public Colleges and Universities," December 1982 draft.

degrees, is eroded. Yet many colleges, particularly community colleges, continue to award degree credit for remedial work, although in some cases students are required to count such work as electives. State funding policies may encourage this practice. In some states public institutions receive funding only for courses that award degree credit. In such circumstances, colleges may grant degree credit for remedial courses in order to fund remedial programs.

Colleges admitting underprepared students and enrolling them in high school-level remedial work can still maintain a given level of graduation standards for all students. "Institutional" credit — sometimes called "workload" credit — allows colleges to report "credit hours" without debasing their degrees. Institutional credit counts in the student's course load and appears on the transcript, but is not counted as degree credit. Four-year colleges — as is the case in the public institutions in Florida, Georgia, Louisiana, Maryland, Mississippi, and Virginia — generally offer institutional credit for remedial work.

Florida's Miami-Dade Community College, an open-door institution, has implemented a noteworthy educational program designed to improve quality. Miami-Dade's "Standards of Academic Progress" is a comprehensive system for classifying academic standing so that students experiencing difficulties can be identified and helped. The Standards of Academic Progress motivate students to higher achievement by alerting them very quickly when their performance is unsatisfactory and providing support services to help them overcome difficulties. Students who continue to perform below standards, despite additional support and academic probation, are suspended or dismissed. Student progress is monitored with performance tests; a computerized information system called the Academic Alert and Advisement System provides mid-term RSVP (Response System with Variable Prescriptions) reports to about 46,000 students.

Miami-Dade President Robert H. McCabe describes the new approach:

> First, we test all students when they enter. Second, if they are below what we think are reasonable expectations in math, reading, or writing to start regular college work, they have to take courses to raise those skills before they can proceed. Third, we have clamped down standards of academic progress that begin to control the student's movement very early — as early as seven credits. If they don't have a C (2.0) average, and if they haven't passed half of their courses, we begin to restrict loads. That's because our data show that if students take fewer courses, more time can be directed to those courses, and thus, there's a better chance for them to succeed.
>
> We also begin to require students to get more help. . . . Students are tested to show that they have raised their particular reading and writing skills to another level before they can proceed to the rest of the curriculum. . . . If after 30 credits students are not successful, we tell them we have done all that we can for them . . . at this time.
>
> Our position with students is: we are going to do everything we can to help you if you start with a deficiency in skill; since it's going to take longer, don't expect to finish in a standard amount of time. . . . Considering the deficits in skills they have when they enter, many students are not going to make it through our system. Even if they don't make it, we have started them in reading, writing, and math, and we didn't let them proceed unless they raised those skills. . . . Even those students who don't complete are going away with skills that are going to be helpful to them as they move out into society.

College Admissions and Underprepared Students

The American system of higher education aims at a balance between access and quality. The twin goals of equal opportunity for everyone and excellence in education may appear in some ways contradictory, but institutions that admit underprepared students *can* maintain creditable graduation requirements. John Gardner relates his view:

> It is no sin to let average as well as brilliant youngsters into college. It *is* to let any substantial portion of them — average or brilliant — drift through college without effort, without growth, and without a goal. That is the real scandal in many of our institutions. Though we must make enormous concessions to individual differences in aptitude, we may properly expect that every form of education be such as to stretch the individual to the utmost of his potentialities. And we must expect each student to strive for excellence in terms of the kind of excellence that is within his reach.

The admissions policies of a college largely determine the need for remediation among incoming students. "Open-door" institutions admit *all high school graduates* without review of conventional academic qualifications. "Selective" institutions admit a majority of applicants who meet some specified level of academic achievement or have other qualifications above and beyond high school graduation — many of these students are well-prepared for college and quite a few are not. "Competitive" institutions admit only those applicants who meet a specified level of academic achievement or have other qualifications above and beyond high school graduation. Students admitted to competitive institutions generally are well-prepared, highly motivated, and achievement-oriented. Many selective and competitive colleges have "special admissions" programs for disadvantaged and minority students who do not have the academic qualifications expected of other applicants. These students are underprepared for college-level work and often experience difficulty adapting to the college environment.

"Value-added" is a term used in education to refer to the changes that students undergo as a result of an educational experience. In college admissions, the value-added approach suggests that admissions procedures should be designed to enroll students who are most likely to be influenced in desirable ways by the college. From this point of view, all students — underprepared and well-prepared — with potential for learning and development can benefit from college.

The problems associated with remediation for underprepared students are leading more state officials to ask if open admissions policies are appropriate to the missions and functions of four-year colleges and universities. California has one of the best known hierarchial systems of higher education, with open admissions in the community colleges, selective admissions at campuses in the California State University System, and competitive admissions at the University of California. Recent developments in Florida, Kentucky, Mississippi, and Virginia indicate that other states may be moving toward a system in which community colleges

may be the primary or only open-door institutions. If two-year institutions are expected to handle most of the underprepared college students in the future, articulation agreements will have to address the issue of transfer credits.

Two major considerations affect the need for remedial education in a college. The *number* of underprepared students and their *level of preparation* determine the kind and scope of remediation. When a college admits a large number of underprepared students with inadequate basic skills, it is facing a high failure rate or extensive remediation if educational quality is to be maintained. The need for remediation diminishes as admissions criteria become more rigorous.

A growing number of colleges are requiring more preparation at the high school level. These colleges want college-bound high school students to have successfully completed advanced courses in English, mathematics, science, and social studies *before* they enroll as undergraduates. It is widely known that better high school preparation will lower the number of underprepared students going to college, and subsequently reduce the need for remediation.

In Kentucky, the Council on Higher Education and the State Board of Education have approved a plan for a college preparatory curriculum that high school students must complete to be admitted into the state's universities. The plan defines which courses the students should take and what information they should know. Each institution can exempt up to 20 percent of the entering students from the requirements. The statewide plan establishes only minimum admissions standards — individual institutions can implement more demanding entrance criteria.

A Task Force on the Preparation of the College-Bound Student was established by Louisiana's Board of Regents to recommend strategies for upgrading the college preparatory curriculum in high schools of that state. The Task Force report proposes a rigorous college preparatory curriculum, specifies the recommended content for each course in the curriculum, and suggests the competencies that should be at the command of the high school graduate who plans to attend college.

Mississippi's Board of Trustees of State Institutions of Higher Learning will require additional high school units for freshman students entering college in 1986. Thus, high school students entering the ninth grade in 1982 will be expected to have completed the specified curriculum for admission into Mississippi's eight public universities.

Evaluating Remedial Programs

Many programs for underprepared students are not evaluated, and for those that are, the evaluations often produce little evidence to identify the effectiveness of the programs. Unevaluated remedial programs tactily support the critics who proclaim that much of the money going into programs for underprepared students is wasted.

Evaluation at the level of the individual student appears to be more advanced than at the program, institutional, system, or state levels. Many diagnostic tests can provide reliable and valid information about individual students, but the quality of evaluations of remedial programs at the institutional level is uneven at best. More longitudinal studies of student performance after remediation are needed to assess the impact of remedial activities. Reliable evaluation practices must be established at the institutional level before data for planning and management at the system and state levels can be effectively utilized.

Maryland's state colleges "track" each student who has done remedial work as he or she progresses through the college program. Grade-point averages, the ratio of credits earned to credits attempted, and percentage of students graduating within four or five years are measures that are used to monitor progress.

Colleges which provide feedback to individual high schools on the first-year performance of their graduates may find fewer underprepared students coming to them from those high schools. The Georgia Board of Regents annually sends high schools aggregate information showing the number of their graduates entering the public university system as freshmen, the number required to take remedial courses, and the averages for five variables — high school grade-point average, SAT verbal and math scores, college grade-point averages, and credit hours earned.

The necessity of evaluating remedial programs is apparent. The underprepared students and the funding sources are both shortchanged unless there is evidence of significant benefits at a reasonable cost. With evaluation, effective programs for underprepared students can be identified and publicized; ineffective programs can be terminated or replaced.

Successful Remedial Programs

By definition, remedial programs that are "successful" improve the educational performance of underprepared students. Underprepared students in such programs can be expected to make better grades and to graduate after remediation. In "value-added" terms, successful remedial programs help colleges have a greater educational impact upon students. Research on student performance after remediation has identified some common characteristics of successful remedial programs.

Underprepared students need particularly effective instruction from committed teachers. Well-prepared, achievement-oriented students are, to a large extent, independent learners — they can learn what is expected from attending lectures and by reading. Underprepared students, however, need individual attention from energetic, enthusiastic teachers. Remedial instructors must be enthusiastic because underprepared students depend heavily upon their teachers for leadership and motivation. It is vitally important that committed instructors teach remedial courses; in fact, some institutions staff remedial courses only with faculty who volunteer to teach underprepared students. A review of successful remedial programs found these characteristics: faculty had chosen their assignment, had received special training, and had been given training in counseling.

Research on learning in a wide variety of educational environments shows that "time on task" and "knowledge of results" are crucial to effective teaching and learning. "Value-added" research by Astin indicates that the benefits of college are directly proportionate to the involvement of students in the educational experience. For remedial programs, this means that students must actively participate in learning for substantial and frequent periods of time; in

addition, students should be given information regularly which reports on how they are progressing. Mandatory attendance for remedial instruction is the norm.

Some key elements of effective remedial programs have been identified. Effective instructors decide what is to be learned, how the subject matter is to be taught, and what is expected of students. Support services are very important: counselors who function as curriculum consultants and advisors; peer tutors, counselors, and advisors who have received special training; and a learning center that combines a remedial laboratory, a traditional library, and the classroom. Successful programs have a department or division of remedial studies to handle registration and orientation for underprepared students, select competent staff and promote ongoing staff development, integrate instructional methods and course objectives, evaluate the remedial program and use the results for improvement, and exchange information with other remedial programs.

A 1979 study of remedial education in Louisiana found that programs with high retention rates (greater than 50 percent) had three common characteristics: only full-time faculty taught remedial courses; tutors were used to assist remedial students; and each program had a high expenditure per student.

Tutoring is the traditional form of remediation for underprepared students who lack mathematics, reading, and writing skills. Instructors in tutoring programs may be faculty members, undergraduate and graduate students, work-study students, high school teachers, paraprofessionals from the community, or volunteers. Peer-tutor programs have been very successful at some colleges, with benefits for both tutor and tutored. The University of Florida uses peer tutors extensively and has produced a manual describing how to prepare tutors and organize a tutor-training program.

Counseling is an important component of instructional support. Underprepared students need expert advice and much encouragement. Effective counselors point out the benefits of remedial work to underprepared students in terms of the student's own persistence and success in the college setting. Students who are "herded" into remedial courses without explanation are less likely to be successful.

Use of computers for remedial education is very likely to increase in the future. Computer-managed instruction (CMI) and computer-assisted instruction (CAI) can do some routine educational tasks more efficiently than can people. CMI systems score tests, diagnose learning problems, prescribe appropriate assignments, and report results on an individual and cumulative basis. CMI monitors self-paced or individualized learning, but the student does not interact directly with the computer.

CAI allows students to interact directly with a computer — the student responds with a keyboard, and the computer communicates with images on a display screen. The advantages of CAI are numerous: the computer adjusts to the learning rate of each learner; hours of extra drill or dialogue are available; student and computer give and receive feedback on a minute-by-minute basis; and the computer is always ready to instruct. Remedial educators who use CAI do not recommend replacing teachers with computers; rather, they look upon CAI as an instructional technique that works well with some students and in some subjects.

Among minority high school graduates entering college, a significant number are underprepared for college-level work, particularly in verbal and mathematical skills. For several years SREB has been working with a number of historically black institutions in the South in developing instructional programs and techniques designed to increase student retention and strengthen those competencies that will enable more black students to enter mathematics- and science-related fields in which minorities are under-represented.

A recent SREB publication, *Improving Minority Students' Competencies: Strategies in Selected Colleges*, describes some of these approaches, which differ in many respects from traditional remediation methods. Strategies include modifying curricula and instructional techniques, establishing learning centers, and initiating outreach projects for high school students and teachers. Recently, SREB has been holding seminars for faculty from both historically black and historically white institutions, exploring ways to adapt these techniques in developing or strengthening similar programs on their own campuses.

The Future of Remedial Education in Colleges

Several state systems of higher education — Florida, Kentucky, Mississippi, Georgia, and Virginia, for instance — that now allocate considerable resources to remedial programs plan to phase out such funding to all but open-door institutions in the future. Widespread remedial programs in state colleges are viewed with a skeptical eye by state officials who allocate funds and monitor expenditures for higher education. Obviously, the most effective means to terminate remedial programs is to reduce the need for them — by decreasing the number of underprepared students. Better elementary and secondary education and tighter admissions requirements for students entering college may indeed reduce the need for remediation at the college level.

It would be unrealistic to predict that there will be no underprepared college students in the forseeable future. Open-door institutions, especially community colleges, will continue to enroll some underprepared students, and some form of remediation will be necessary. Selective institutions may be able to terminate remedial programs. Small-scale learning centers, used by all students on a campus, can also serve the needs of a small number of underprepared students. Colleges that phase out remedial programs may conserve resources and still help underprepared students by shifting remedial instructional responsibilities to learning centers.

If remedial education is phased out of colleges, some related public policy issues will need to be considered. How viable is the open-door concept for higher education? How will educational opportunity and minority access be sustained? Are the benefits of open admissions worth the costs? Should open admissions be limited to two-year institutions?

Conclusions

Recent increases in the number of underprepared students entering college have resulted in a greater need for remedial education to prepare them for college-level work. The cost of providing remediation for these students burdens colleges and taxpayers, and academic quality may be lowered. Several

strategies, however, can initiate changes to improve this situation.

First, colleges can raise admissions requirements. The high school graduate who has completed a *rigorous* college preparatory curriculum is ready for higher education. Colleges can indicate the preferred content and courses and suggest the requisite competencies for admission. These requirements should be communicated to high schools and prospective students as early as possible. Selective admissions policies encourage academic preparation and reduce the number of underprepared students that enroll in college. With fewer underprepared students, the need for costly remedial education decreases.

Secondly, colleges can tighten academic standards. Students who achieve at a satisfactory rate advance and are likely to graduate; students who do not achieve satisfactorily are suspended or dismissed. Enforcing fair and reasonable academic standards motivates underprepared students who want to succeed, and eliminates students who cannot or will not do college-level work. Taxpayers and alumni generally support institutional policies that strengthen academic quality.

Finally, open-door institutions can closely monitor remedial programs to improve effectiveness and efficiency. Remedial programs are necessary in open-door institutions — where underprepared students usually enroll. Remedial programs that do not demonstrate sufficient learning gains, however, are indefensible, educationally and economically. Ongoing evaluation of instruction and learning that leads to appropriate adjustments characterize successful remedial programs in colleges. Many remedial programs are now using technology-based instructional systems to supplement traditional remedial instruction. Advances in technology have great potential for increasing learning and reducing the cost of remediation.

Effective remedial education represents a commitment to educational opportunity that bridges the gap between underprepared students and successful college-level work. Higher education — especially open-door institutions — will continue to have the problem of underprepared students until elementary and secondary schools do a much better job of preparing students for college-level academic work.

This edition of *Issues in Higher Education* was prepared by Michael M. Myers, SREB research associate.

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